

REMARKS

The Office Action dated September 2, 2008, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

By this Response, claims 1, 19-20, 22, and 25-31 have been amended to more particularly point out and distinctly claim the subject matter of the present invention. Claims 32-34 have been added. No new matter has been added. Accordingly, claims 1-34 are currently pending, of which claims 1, 19, 27, and 30-32 are independent claims.

Furthermore, Applicants respectfully disagree with the Office Action's assertions on pages 2-3, alleging that Applicants have characterized the description of Billström, Widegren, and Sato in the manner indicated by the Office Action. Rather, as discussed below, Billström, Widegren, and Sato, whether taken individually or in combination, fail to disclose or suggest each and every element recited in claims 1-34. Applicants note that the Office Action failed to address each and every argument presented in Applicants' Response dated June 16, 2008.

In view of the above amendments and the following remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending rejections to the claims for the reasons discussed below.

Claim Rejections under 35 U.S.C. §103(a)

Claims 1, 7-13, 16-24, 26-28, and 30-31

The Office Action rejected claims 1, 7-13, 16-24, 26-28, and 30-31 under 35 U.S.C. §103(a) as being allegedly unpatentable over Billström, *et al.* (U.S. Patent No. 5,590,133) (“Billström”) in view of Widegren, *et al.* (U.S. Patent No. 6,374,112) (“Widegren”). The Office Action took the position that Billström describes each and every element recited in the claims with the exception of allocating radio resources in a UMTS system. The Office Action alleged that Widegren cures the deficiencies of Billström. Applicants respectfully submit that the claims recite subject matter that is neither disclosed nor suggested in the combination of Billström and Widegren.

Claim 1, from which claims 2-18 depend, is directed to a method. The method includes a multicast service notification transmitted to a certain multicast group, the notification is configured to inform of an upcoming multicast session. The multicast service notification is received in mobile stations belonging to the multicast group. In response to the receiving the multicast service notification, a moment for a response to the multicast service notification in the mobile stations is selected. A presence report is sent from at least one of the mobile stations at the response moment of the at least one mobile station. A presence report is received in a radio access network. Radio resources are set up for multicast transmission in a cell of a cellular network, when the presence report received in the cell meets a predetermined criteria. The multicast data is

transmitted using the radio resources set up for the multicast transmission. The cellular network includes mobile stations.

Claim 19, from which claims 20-26 depend, is directed to a system. The system includes a radio access network configured to transmit a multicast service notification to mobile stations belonging to a multicast group. In the mobile stations, a selector is configured to select a moment for a response to said multicast service notification and further configured to send a presence report to the radio access network when the response moment arrives, whereby the radio access network is further configured to receive the presence reports. A processor is configured to establish radio resources for the multicast transmission in individual cells of a cellular network, the processor being configured to establish the radio resources for a cell when the presence report received in the cell meets a predetermined criteria.

Claim 27, from which claims 28-29 depend, is directed to an apparatus. The apparatus includes a receiver configured to receive a multicast service notification informing of an upcoming multicast session. A processor is configured to select a moment for a response to the multicast service notification and further configured to send a presence report at the response moment. The presence report indicates the willingness of the apparatus to receive the multicast service. The receiver is further configured to receive a notification informing of a presence report sent by another apparatus.

Claim 30 is directed to system. The system includes a radio access network configured to transmit a multicast service notification to mobile stations belonging to a

multicast group. In the mobile stations, a first processing means selects a moment for a response to the multicast service notification and sends a presence report to the radio access network when the response moment arrives, whereby the radio access network is adapted to receive the presence reports. A second processing means establishes radio resources for the multicast transmission in individual cells of the cellular network, the second processing means for establishing the radio resources for a cell when the presence report(s) received in the cell meet(s) predetermined criteria.

Claim 31 is directed to an apparatus. The apparatus includes a reception means receives a multicast service notification informing of an upcoming multicast session. A response means selects a moment for a response to the multicast service notification and sends a presence report at the response moment. The presence report indicates the willingness of the apparatus to receive the multicast service. The reception means are further for receiving a notification informing of a presence report sent by another apparatus.

Embodiments of the present invention are accomplished by utilizing service notifications sent to the members of the multicast group in order to inform them of an upcoming multicast session. Upon receiving the service notification, a mobile station belonging to the multicast group determines a moment for sending a response to the notification. The response moments of the members can be spread over a certain period so that only one or a few of the members give an immediate response to the network. Thus, the timing for a response to a received multicast service notification is used to

reduce signaling in the start-up phase of the multicast service. Radio resources are then established in a cell when the responses received meet desired criteria, and the service is delivered through the resources established. The responses are also “presence reports,” since a response indicates that the corresponding member of the multicast group is present in the cell. Applicants respectfully submit that each of the pending claims recites features that are neither disclosed nor suggested in any of the cited references.

As will be discussed below, the combination of Billström and Widegren would fail to disclose or suggest every claim feature recited in claims 1, 7-13, 16-24, 26-28, and 30-31, and therefore fails to provide the advantages and the features discussed above.

Billström is directed to a system for providing packet data services in TDMA cellular systems. One or more shared packet data channels are provided, depending on demand. The packet data services are available to a mobile station after a procedure that brings the mobile station from an initial GSM idle state to a Packet Data (PD) state, (Billström, FIG. 4). The procedure may be initiated either by the mobile station making a request for the packet data service, or by the Mobile services Switching Center (MSC) that is currently serving the mobile station, when the MSC receives a packet addressed to the mobile station. Figure 5 of Billström illustrates mobile-initiated establishment of the PD state.

Widegren is directed to a system for allocating radio resources in a UMTS system. The objective in the Widegren system is to allocate resources when a service node requires communication with a mobile station. This is accomplished in a manner that a

service node requests a radio access bearer from the (UT)RAN rather than a specific radio channel resource. A radio access bearer is a logical connection through the (UT)RAN and over the radio air interface and one or more parameters, accompany a radio access bearer request sent from the service node. The (UT)RAN establishes the radio access bearer, i.e. the logical connection, and maps it to physical transport and radio channel resources based on the parameter(s). The mapping involves the selection of the type of channel to be used. For example, when the quality of service requested in the radio access bearer request is high, a dedicated channel may be chosen, whereas a common channel may be selected when the quality of service requested is lower.

Applicants respectfully submit that the Office Action failed to establish a *prima facie* case of obviousness regarding the rejections of claims 1, 7-13, 16-24, 26-28, and 30-31 under 35 U.S.C. §103(a) based on the teachings of Billström and Widegren.

Assuming *arguendo* that the teachings of Billström could be combined with the teachings of Widegren, the combination of Billström and Widegren would fail to disclose or suggest each and every element recited in claim 1, and similarly recited in claims 19, 27, and 30-31. Specifically, the combination of Billström and Widegren would fail to disclose or suggest, at least, “transmitting a multicast service notification to a certain multicast group, said notification configured to inform of an upcoming multicast session, receiving the multicast service notification in mobile stations belonging to said multicast group, in response to said receiving the multicast service notification, selecting a moment for a response to said multicast service notification in said mobile stations...setting up

radio resources for multicast transmission in a cell of a cellular network, when the presence report received in said cell meets a predetermined criteria, and transmitting the multicast data using the radio resources set up for the multicast transmission,” as recited in claim 1, and similarly recited in claims 19, 27, and 30-31.

The Office Action alleged that Billström describes the aforementioned claim features, citing column 1, lines 52-53, column 2, lines 27-46, column 4, lines 37-48, column 7, line 65, to column 8, line 2, column 9, line 30, to column 10, line 6, column 10, lines 17-19, column 11, line 66, to column 12, line 2, column 14, lines 17-31, column 15, lines 26-32 and 46, to col. 16, line 29, column 19, lines 24-67. However, a review of these passages demonstrates that Billström fails to describe or suggest the aforementioned claim features.

Applicants respectfully submit that Billström is silent regarding, at least, “transmitting a multicast service notification to a certain multicast group, said notification configured to inform of an upcoming multicast session, receiving the multicast service notification in mobile stations belonging to said multicast group,” as recited in claim 1.

Billström merely describes that a mobile network should provide broadcast and multicast services (Billström, col. 1, lines 52-53). The broadcast and multicast services are provided by Network Application Servers attached to the backbone of the network (Billström, col. 7, line 65, to col. 8, line 2). Billström further relates to contents of VLR and PD controller databases for the PD mode of Billström (Billström, col. 10, lines 17-19). When a mobile station is in a normal or PD sleep mode, the mobile station listens

for possible PDCH or multicast messages on the master PDCH (Billström, col. 11, line 66, to col. 12, line 2). Billström further discloses a known cellular radio system in which voice and/or data packets may be transferred (Billström, col. 2, lines 27-46). At column 4, lines 37-48, Billström generally describes the construction of the apparatus of Billström. Billström also mentions how the PD mode is established using regular GSM signaling with a new type of service request that requests the establishment of the PD mode for the mobile station concerned. The same procedure is used for each mobile station separately to establish the PD state (Billström, col. 9, line 30, to col. 10, line 6).

Accordingly, Applicants respectfully submit that none of the cited description of Billström by the Office Action on pages 3 and 4 describe or suggest the aforementioned claim features of claim 1. Thus, Billström does not, in any way, disclose or suggest a service notification that would inform certain multicast groups of an upcoming multicast service session.

Furthermore, contrary to the Office Action's allegations, Applicants respectfully submit that Billström is silent regarding, at least, "in response to said receiving the multicast service notification, selecting a moment for a response to said multicast service notification in said mobile stations," as recited in claim 1.

The description of Billström at column 1, lines 52-53, column 7, line 65, to column 8, line 2, column 10, lines 17-19, and column 11, line 66, to column 12, line 2 were discussed above. Billström further mentions how an incoming GSM call is routed to a mobile station that is in PD mode (Billström, col. 14, lines 17-31). Billström also

describes how the first packet data channel, e.g. the master PDCH, is established for a cell (Billström, col. 15, line 46, col. 16, line 29). Billström also describes paging in a situation when the possible location of the mobile station can be limited to a small number of cells. In this case, the BTS that pages the mobile station on a downlink MPDCH also reserves a time slot on the uplink MPDCH for the response of the mobile station (Billström, col. 19, lines 24-60).

Accordingly, Billström merely describes a response to a paging signal, not a response to a multicast service notification. Furthermore, the paging relates specifically to an individual mobile station, not to a group of mobile stations. Furthermore, Billström relates to a selection of a time slot, not to a selection of a response moment. Therefore, Billström does not, in any way, disclose or suggest a mechanism in which a mobile-specific response moment is selected in a plurality of mobile stations in response to a service notification.

Thus, Applicants respectfully submit that none of the cited description of Billström by the Office Action on page 4 disclose or suggest the aforementioned claim features of claim 1.

Furthermore, Applicants respectfully submit that Billström is silent regarding, at least, “setting up radio resources for multicast transmission in a cell of a cellular network, when the presence report received in said cell meets a predetermined criteria, and transmitting the multicast data using the radio resources set up for the multicast transmission,” as recited in claim 1.

The description of Billström at column 1, lines 52-53, column 7, line 65, to column 8, line 2, column 10, lines 17-19, and column 11, line 66, to column 12, line 2 were discussed above. Billström further discloses that the system may include a variable mix of traffic channels and packet data channels, and a PDCH allocation controller handling the allocation of the packet data channels (Billström, col. 15, lines 26-32). Billström also discloses that for mobile stations in the PD mode, the system may include complementary mechanisms that help to reduce the total usage of radio channel resources for paging on hand and for location updating/cell location reporting on the other hand (Billström, col. 19, lines 61-67).

Accordingly, Billström is silent regarding this feature and does not, in any way, disclose or suggest such a service start in order to be able to reserve radio resources in an optimal way. Instead, Billström merely describes that the PD mode is established using the regular GSM signaling with a new type of service request (Billström, see signal 3 in FIG. 5) that requests the establishment of the PD mode for the mobile station concerned. In the Billström system, the same procedure is used for each mobile station separately to establish the PD state. Thus, Billström does not disclose or suggest resource allocation as recited in the present pending claims.

As discussed above, certain embodiments of the presently claimed invention, seek to start a multicast service in a cellular network so that the resources allocated for the service correspond to the real need in the network and so that excessive signaling on the uplink channels can be avoided in the start-up phase of the service. Billström does not

suggest anything like this, but only generally sets forth that the shared packet channels may be employed for providing multicast services.

Furthermore, the Office Action asserted that the difference between Billström and the present invention is that Billström “does not explicitly teach allocating radio resources in a UMTS system.” However, Applicants respectfully submit that at best, the most relevant feature of Billström with respect to the present invention is that the Billström system is intended for providing multicast services in a cellular network. Applicants further submit that Widegren fails to cure the numerous deficiencies of Billström.

Widegren was briefly discussed above. Further, Widegren relates to the problem of how to efficiently allocate resources for a connection between a core network node and a mobile station. In Widegren, the radio resources are set up in the RAN based on the parameters associated with the radio access bearer request received from a core network node. Thus, the RAN does not communicate with a mobile station when setting up the resources. Consequently, Widegren does not suggest using presence reports whose transmissions may be spread over a wider time window by using mobile-specific response moments for the reports, as recited in the presently claimed invention.

Applicants submit that Widegren is silent with regards to efficiently initiate a multicast service for a group of mobile users belonging to the same multicast group. Therefore, Widegren fails to cure the deficiencies of Billström.

The Office Action alleged that Widegren cures the deficiencies of Billström regarding the aforementioned claim features, citing column 1, lines 9-27, column 2, lines 11-33, column 5, lines 29-55, column 6, lines 51-67, column 7, lines 41-53, and column 11, lines 31-40. However, a review of these passages demonstrates that Widegren fails to cure the deficiencies of Billström regarding the aforementioned claim features.

Rather, Widegren, at column 1, lines 9-27, merely describes the field of Widegren's invention and the development of mobile communication systems. At column 2, lines 11-33, Widegren describes the known HSCSD and GPRS extensions of the GSM system. At column 5, lines 29-55 and illustrated in Figure 1, Widegren describes the overall structure of a UMTS. At column 11, lines 31-40, Widegren discusses information parameters that describe the direction, configuration, and type of data to be transferred. At column 7, lines 41-53 and illustrated in Figure 2, Widegren illustrates a logical architecture of the network shown in Figure 1. At column 6, lines 51-67, Widegren indicates that a signaling connection between a mobile station and a core network service node may be set up in response to a certain event/process, such as an activation of a service in the mobile station or a location update. After a service request is sent through the signaling connection, the RNC assigns a physical radio and transport resources between the mobile station and the core network end user.

Applicants submit that the cited references fail to disclose or suggest the feature of a "presence report" as recited in claim 1. The Office Action relied on Widegren, at column 6, lines 51-67, and column 7, lines 41-53, as illustrated in Figures 1 and 2, to

disclose this feature. On page 6, the Office Action stated that a cell update message “reads on the claimed presence report.” However, Applicants respectfully traverse this assertion because the recited “presence report” does not, in any way, correspond to the cell update message, as alleged in the Office Action. Further, there is no support in Widegren to suggest any such analogy.

Widegren does use the term “update” once in column 6, line 59, referring to “location update.” The use of the term in Widegren indicates, as discussed above, that a signaling connection may be set up from the mobile station to the core network in response to a location update process, so that the mobile station may request a service from a core network service node through the signaling connection. As the phrase is understood, a location update process is performed when the location area of a mobile station changes.

Assuming *arguendo* that the “location update” of Widegren corresponds to the presence report recited in the pending claims, Applicants respectfully submit that the “location update” is not a response to a service notification. Furthermore, a response moment is not selected for the “location update” of Widegren. Furthermore, radio resources are not set up when the location update messages received in a cell meets the predetermined criteria. Instead, a signaling connection is always, not conditionally, set up in response to the location update process. Radio resources are set up only after the service has been requested through the signaling connection set up in response to the location update process.

Furthermore, Applicants respectfully submit that one skilled in the art would not have been motivated to modify the teachings of Billström with the teachings of Widegren, because the two references are not analogous, and neither of the references suggests any such motivation. Specifically, Billström describes that multicast services may be provided through shared packet channels of a TDMA system, while Widegren describes how a (UT)RAN establishes a radio access bearer and maps it to physical transport and radio channel resources. Therefore, the teachings of these references are not analogous.

The Office Action, on page 5, indicated that the motivation to combine Billström and Widegren is a desire to maximize the efficiency of radio resources. Applicants respectfully submit that this is a general goal of all radio communication systems, and does not specifically substantiate why one of ordinary skill in the art would have combined the teachings of Billström and the teachings of Widegren in the manner presently disclosed. The Office Action also refers to column 9, line 64, to column 10, line 14 of Widegren, which involves a specific allocation scheme in which traffic is divided into six classes. For two of the classes, a fixed amount of resources is allocated for a radio access bearer, while for the remaining four classes, the allocation may occur dynamically. Applicants respectfully assert that these teachings of Widegren provide no motivation for modifying the teachings of Billström with the teachings of Widegren. Rather, the MBMS service teaches away from the alleged combination because the relative benefit of incorporating the radio resource allocation of Widegren into the

teachings of Billström is not bigger for the MBMS service (multipoint-to-multipoint service) than for any other traffic. Therefore, the Office Action failed to demonstrate why one of ordinary skill in the art would have been motivated to combine the teachings of Billström with the teachings of Widegren.

Accordingly, Billström fails to disclose or suggest every feature recited in claim 1, and similarly recited in claims 19, 27, and 30-31. Widegren fails to cure the deficiencies of Billström regarding these claim features.

Accordingly, the combination of Billström and Widegren would fail to disclose or suggest every feature recited in claim 1, and similarly recited in claims 19, 27, and 30-31.

Claims 7-13 and 16-18 depend from claim 1. Claims 20-24 and 26 depend from claim 19. Claim 28 depends from claim 27. Accordingly, claims 7-13, 16-18, 20-24, 26, and 28 should be allowable for at least their dependency upon an allowable base claim, and for the specific limitations recited therein.

Therefore, Applicants respectfully request withdrawal of the rejections of claims 1, 7-13, 16-24, 26-28, and 30-31 under 35 U.S.C. §103(a), and respectfully submit that claims 1, 19, 27, and 30-31, and the claims that depend therefrom, are in condition for allowance.

Claim Rejections under 35 U.S.C. §103(a)

Claims 2-6, 14-15, 25, and 29

The Office Action rejected claims 2-6, 14-15, 25, and 29 under 35 U.S.C. §103(a) as being allegedly unpatentable over Billström and Widegren, as applied to claim 1, and further in view of Sato, *et al.* (U.S. Patent Publication No. 2002/0106985) (“Sato”). Applicants respectfully submit that the claims recite subject matter that is neither disclosed nor suggested in the combination of Billström, Widegren, and Sato.

Billström and Widegren were discussed above. Sato is directed to a system for providing multicast services, in which a radio terminal is provided with service continuation requesting means, which transmit a service continuation request signal to an information distribution apparatus for requesting continuation of multicast information distribution service. A host that receives the query, monitors as to whether a response from another host is received within a random time. If this is the case, the host maintains reception condition. Sato merely describes the operation of the service providing system during the service, not the initiation of the service as recited in the presently claimed invention.

As previously discussed above, the combination of Billström and Widegren would fail to disclose or suggest each and every element recited in claim 1, and similarly recited in claims 19, 27, and 30-31. Sato fails to cure the deficiencies of Billström and Widegren. Specifically, Sato fails to disclose or suggest, at least, “transmitting a multicast service notification to a certain multicast group, said notification configured to

inform of an upcoming multicast session, receiving the multicast service notification in mobile stations belonging to said multicast group, in response to said receiving the multicast service notification, selecting a moment for a response to said multicast service notification in said mobile stations...setting up radio resources for multicast transmission in a cell of a cellular network, when the presence report received in said cell meets a predetermined criteria, and transmitting the multicast data using the radio resources set up for the multicast transmission,” as recited in claim 1, and similarly recited in claims 19, 27, and 30-31.

Accordingly, the combination of Billström, Widegren, and Sato would fail to disclose or suggest each and every element recited in claim 1, and similarly recited in claims 19, 27, and 30-31.

Claims 2-6 and 14-15 depend from claim 1. Claim 25 depends from claim 19. Claim 29 depends from claim 27. Accordingly, claims 2-6, 14-15, 25, and 29 should be allowable for at least their dependency upon an allowable base claim, and for the specific limitations recited therein.

Therefore, Applicants respectfully request withdrawal of the rejections of claims 2-6, 14-15, 25, and 29 under 35 U.S.C. §103(a), and respectfully submit that claims 1, 19, and 27, and the claims that depend therefrom, are in condition for allowance.

New Claims 32-34

Claim 32 has its own claim scope, but also contains limitations similar to those recited in claim 1. Accordingly, Applicants respectfully submit that the cited references, whether taken individually or in combination, would fail to disclose or suggest, at least, “receiving a multicast service notification informing of an upcoming multicast session; selecting a moment for a response to said multicast service notification and further configured to send a presence report at the response moment; and receiving a notification informing of a presence report sent by another apparatus, wherein the presence report indicates the willingness of the apparatus to receive the multicast service,” as recited in claim 32.

Claims 33-34 depend from claim 32. Accordingly, claims 33-34 should be allowable for at least their dependency upon an allowable base claim, and for the specific limitations recited therein.

Therefore, Applicants respectfully request withdrawal of the rejections of claims 32-34 under 35 U.S.C. §103(a), and respectfully submit that claim 32, and the claims that depend therefrom, are in condition for allowance.

CONCLUSION

In conclusion, Applicants respectfully submit that Billström, Widegren, and Sato, whether taken individually or in combination, fail to disclose or suggest each and every

element recited in claims 1-34. The distinctions previously noted are more than sufficient to render the claimed invention non-obvious. It is therefore respectfully requested that all of claims 1-34 be allowed, and this present application be passed to issuance.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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